Catalogue of American Amphibians and Reptiles.

JACKSON, DALE R. 1978. *Chrysemys nelsoni.*

Chrysemys nelsoni (Carr)
Florida red-bellied turtle

Pseudemys nelsoni Carr, 1938:307. Type-locality, "Fellsmere, Indian River County, Florida." Holotype, Mus. Comp. Zool., Harvard Univ., 39888, an adult female collected by George Nelson in 1936 (not seen by author).

Pseudemys rubriventris nelsoni: Mertens, 1951:71. Considered *P. nelsoni* conspecific with *P. rubriventris*.

Chrysemys nelsoni: McDowell, 1964:274. *Pseudemys* considered a subgenus of *Chrysemys*.

• CONTENT. No subspecies are recognized.

• DEFINITION. A large (200–340 mm carapace length) emydine turtle with highly arched carapace, deepest at midpoint of shell, greatest carapace width 1.5 to 1.7 times greatest carapace height. The carapace is ovoid in outline with a smooth to shallowly serrated posterior margin. The surface of the carapace is rugose with a distinct sculpturing of vermiculate and narrow, parallel ridges. The cervical scute is not deeply incised on the nuchal bone, and its underlap is longer than wide. The carapace is dark, typically black, usually with a single, broad, vertical red bar on each of the first three pleurals. The plastron is usually orange or coral, at least peripherally, and infrequently bears a pattern of dark blotches along the scute margins. The head and neck usually have only seven yellow stripes on a black background; a prefrontal arrow is frequently formed by the union of the large sagittal stripe and supratemporal stripes on the snout. Usually an orbital and maxillary stripe extend across the temporal region below the supratemporal stripe on each side of the head. The limbs are likewise black and lightly marked with yellow stripes.

The upper jaw has a deep median notch bounded by a cusp on each side. The mandible is strongly serrate along its cutting edge, bears a median cusp, and is flat ventrally; a dorsal symphysial ridge is present. The alveolar surfaces of the jaws are wide, and each bears a well-developed, serrate, longitudinal median ridge. The vomer is incorporated into the upper alveolar surface, and the pterygoids do not reach the exoccipitals. Minimum width of pterygoids less than 0.20 skull length. The skull is nearly as broad as long.

The carapace of hatchlings is circular in outline and has a distinct middorsal keel. The markings are bolder than in adults. The vertical bars on the pleurals are yellowish green, and the plastron often has black, semicircular markings bordering the sulci of the scutes. Sexual dimorphism in adults is confined to the elongate foreclaws and long thickened tail of males and the greater maximum body size of females.

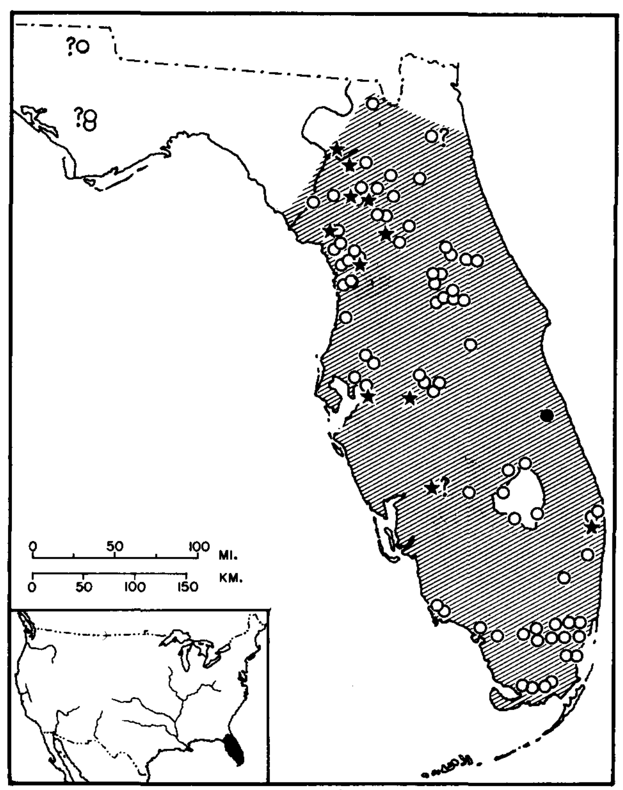
• DESCRIPTIONS. External morphology and sex and age-related differences are described by Carr (1938, 1952), Conant (1975) and Ernst and Barbour (1972). C. Jackson (1964), Weaver and Rose (1967) and D. Jackson (1976) present osteological features. Zug (1966) comments on penial morphology; Parsons (1960, 1968) describes choanal structure.

• ILLUSTRATIONS. Carr (1952) provides photographs of an adult and hatchlings, and (1938) includes a photograph of one of the paratypes. Pritchard (1967) and Ernst and Barbour (1972) show a color photograph of an adult. Carr and Crenshaw (1957) illustrate diagnostic head and carapacial patterns, Crenshaw (1955) juvenile plastral patterns. Photographs of the skull are provided by Ernst and Barbour (1972). D. Jackson (1976) includes illustrations of several features of shell osteology.

• DISTRIBUTION. *Chrysemys nelsoni* occurs primarily in lentic situations throughout peninsular Florida from Alachua and Gilchrist counties southward to Cape Sable. A recently discovered small population in Baker County (Powers and Smith, 1977) marks the northern-most known occurrence of the species in the Florida peninsula. Populations apparently do not occur northwest of the Suwannee River. Duellman and Schwartz (1958) state that it does not occur on the Florida Keys. Crenshaw (1955) and Carr and Crenshaw (1957) reported an isolated population of *C. nelsoni* from the Apalachicola area of the Florida panhandle, although this datum is questionable. R. H. Mount and J. W. Crenshaw, Jr. (pers. comm.) report other panhandle specimens of the *C. rubriventris* group, but the taxonomic identity of these turtles is uncertain.

• FOSSIL RECORD. *Chrysemys nelsoni* occupied much of peninsular Florida during the Pleistocene, on the evidence of records from the Florida State Museum vertebrate paleontological collection. *Rancholabrean*: Alachua County: Arredondo 1A (UF 2573, 2053b, 21667); Arredondo 1B (UF 2044a); Arredondo II (UF 2875); Hornsby Spring (UF 2897, 11586, 21685); Orange Lake (UF, uncataloged). Citrus County: Withlacoochee River V (UF 21694); Withlacoochee River VE (UF 21697, 21699); Withlacoochee River VD (UF 21695). Columbia County: Ichetucknee River (UF 21708, 21710, 21711); Ichetucknee River, Jug Spring (UF 1621, 1808, 1947, 1950, 3500, 9851); Ichetucknee River, run of Spring 3 (UF 14086, 14100); Ichetucknee River VII (UF 22643). Gilchrist County: Santa Fe River II (UF 21728); Santa Fe River III (UF 21740); Santa Fe River XV (UF 21745). Levy County: Waccasassa River III (UF 16261); Waccasassa River VI (UF 21904); Waccasassa River VIII (UF 16234b); Waccasassa River X (UF 21912). Marion County: Zuber (UF 3943). Palm Beach County: P. C. Smith Shell Rock Company (UF 21778). Polk County: Bone Valley, Payne Creek (UF 21785). Suwannee County: Branford 1A (UF 21794). DeSoto County: Prairie Creek (UF 1759b, 1816[?]). *Blancan*: Gilchrist County: Santa Fe River I (UF 10559, 21835); Santa Fe River IVA (UF 21839). Hay's (1908) *Trachemys? jarmani* and *Deirochelys floridana*, both from Pleistocene deposits in Hillsborough County, Florida, may represent *C. nelsoni* (see Jackson, 1974). Hirschfeld (1968) reported *C. nelsoni* from a subrecent site in Dade County, Florida. *C. nelsoni* fossils have washed ashore at Edisto Beach, South Carolina, from offshore deposits of Pleistocene age (Dobie and Jackson, in press; this locality is not on the distribution map). D. Jackson (1976) has hypothesized that *C. caelata* (Hay) of the Florida Pliocene was immediately ancestral to *C. nelsoni*.

• PERTINENT LITERATURE. Carr (1952) and Ernst and Barbour (1972) summarize our limited knowledge of the biology of *C. nelsoni*. Lardie (1973) notes courtship, eggs, young and leech parasitism for this species. Pritchard and Greenhood (1968) discuss basking. Hutchison et al. (1966) offer data on thermal tolerances.



MAP. The solid circle marks the type-locality; open circles indicate other localities. Stars indicate Pleistocene fossil sites.

Zweig and Crenshaw (1957) report on its serum protein electrophoretic pattern. Barbour and Carr (1940) mention the occurrence of melanism in males of this species. Killebrew (1977) reports the chromosome number ($2n = 50$). Goodwin and Marion (1977) record communal nesting with *Alligator*.

• ETYMOLOGY. The specific name is a patronym honoring George Nelson, collector of the holotype and former preparator-in-chief at the Museum of Comparative Zoology.

COMMENT

The presence of red-bellied turtle populations in peninsular Florida was recognized prior to Carr's (1938) description. Loennberg (1894) assigned specimens from north central peninsular Florida to *Pseudemys rubriventris*; De Sola (1935) referred the Everglades population to *Pseudemys alabamensis*.

Hay described two fossil species, *Deirochelys floridana* (1908:346) and *Trachemys? jarmani* (1908:351), from Florida. The types of both are nuchal bones; their shape, sculpturing and scutellation are extremely similar to that of extant *C. nelsoni*—so similar that I believe they are conspecific with *C. nelsoni*. If this is the case, both of Hay's names clearly have priority over Carr's name. However, *D. floridana* is not avaiable because it is a junior homonym of *Chrysemys floridana* Le Conte. This leaves *T. jarmani* as an available senior synonym of *C. nelsoni*. Because of extensive use of *C. nelsoni* the zoological nomenclature commission will need to decide which name is to be used.

Several aspects of the biology of this species require further study. Its relationships to other species in the genus are not fully understood. The Edisto Beach fossils effectively bridge the 760 km hiatus between the southernmost Recent populations of *C. rubriventris* and the northernmost Pleistocene and Recent populations of *C. nelsoni* in Florida, and support the hypothesis that at one time the ranges of the two populations were continuous and that gene flow occurred.

Field work in the Florida panhandle is needed to substantiate or refute the existence of a population of *C. nelsoni* there. In line with this it will be essential to look more closely at the relationship between *C. nelsoni* and *C. alabamensis* as well as at geographic variation within these species. On the basis of unpublished fossil evidence, I disagree with Weaver and Rose's (1967) conclusion that *C. nelsoni* is more closely related to the *C. scripta* group than it is to the *C. floridana-concinna* line. Weaver and Rose based their conclusions largely on convergent, apomorphic trophic structures which should be given little taxonomic weight. Furthermore, I am not convinced of the value of characters such as color pattern (Crenshaw, 1955, 1965; Carr and Crenshaw, 1957) to substantiate hybridization with *C. floridana*.

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